



सत्यमेव जयते

भारतीय दूरसंचार विनियामक प्राधिकरण  
TELECOM REGULATORY AUTHORITY OF INDIA  
भारत सरकार / Government of India



New Delhi, Dated the 31<sup>st</sup> of July 2018

**DIRECTION**

**Subject:** Direction under section 13, read with sub-clauses (i) and (v) of clause (b) of sub-section (1) of section 11 of the Telecom Regulatory Authority of India Act, 1997 (24 of 1997) regarding maintenance of Key Performance Indicator (KPI) "Call Setup Delay" to monitor Quality of Service in case of Circuit Switched Fall Back (CSFB) for voice calls.

F.No.305-03/2018-QoS(SP)----Whereas the Telecom Regulatory Authority of India (hereinafter referred to as the Authority), established under sub-section (1) of section 3 of the Telecom Regulatory Authority of India Act, 1997 (24 of 1997) (hereinafter referred to as TRAI Act), has been entrusted with discharge of certain functions, *inter-alia*, to regulate the telecommunication services, ensure compliance of terms and conditions of license and lay-down the standards of quality of service to be provided by the service providers and ensure the quality of service and conduct the periodical survey of such services provided by the service providers so as to protect interest of the consumers of telecommunications service;

2. And whereas the Authority has, in exercise of powers conferred by section 36 read with sub-clause (v) of clause (b) of sub-section (1) of section 11 of TRAI Act, made the Standards of Quality of Service of Basic Telephone Service (Wireline) & Cellular Mobile Telephone Service Regulations, 2009 (7 of 2009) (hereinafter referred to as the Regulations);
3. And whereas the Authority undertook a public consultation by releasing a consultation paper on "Voice Services to LTE users (including VoLTE and CS Fallback)" on 26<sup>th</sup> of February 2018 seeking comments of stakeholders by 16<sup>th</sup> of March 2018. The Authority, in the consultation paper, mentioned the concerns related to call set up delay in case, voice calls for users camped on LTE networks is established via Circuit Switched Fall Back (CSFB) option.
4. And whereas the Authority observed that reasons of longer time required

in setting up of voice calls in case of CSFB option is due to the requirement of the user to latch on to a different radio access network such as GSM or WCDMA than the LTE network in which user is currently latched with. Extra time required to set up voice calls on LTE networks than in cases when users initiates voice calls while latched on to 2G or 3G networks is due to requirement of User equipment to perform certain actions for establishing radio resources connectivity with new radio network in which user is redirected. This additional time may not be under control of service provider as it is a technical requirement and is a part of procedures defined in the international standards. Additional time may not be uniform for all networks and for all types of users as actual time required in a particular case may also be dependent upon the release of specifications which are supported by the serving network or the user equipment. Further, instances of longer time taken to set up the calls might also be observed in cases where configurations in the network carried out by the service provider to redirect the user are not optimized.

5. And whereas the Authority, considering the comments received after consultation with the stakeholders, is of view that measurements which are required to assess the performance of network for delay in setting up the call may not be captured directly from the network parameter counters available in the support systems of the networks. It may require conducting field measurements with special tools to capture delay. Typical maximum time which should be set as a benchmark would be known only after collecting data in different scenarios at different locations and over a period of time. Therefore, the Authority decided that TSPs may be asked to conduct such field measurements in the service areas where LTE networks have been launched but Voice over LTE (VoLTE) services are yet to be launched and submit reports to the Authority on regular basis. Such measurements may be conducted on sample basis limited to few cities or districts in the service area.

6. Now therefore, the Authority, in exercise of the powers conferred upon it under section 13, read with sub-clauses (i) and (v) of clause (b) of sub-section (1) of section 11 of the Telecom Regulatory Authority of India Act 1997 (24 of 1997), hereby directs all Access Service Providers to test and report the average call set up time in case of CSFB in each Licensed Service Area as specified hereunder:

- (i) Identify license service area (LSA) where LTE network is launched but VoLTE service is yet to be launched, and VoLTE service launch would be considered in an LSA only when such services may be used by majority of smartphone users having LTE devices;



- (ii) Identify at least any five cities or districts in each of identified LSAs where field measurements may be taken;
- (iii) Identify at least twenty locations, spread across geographical area and for different network deployment scenarios, in each identified city or district for conducting tests;
- (iv) Conduct at least ten tests at each identified location for measuring call set up delay in cases of mobile originated and mobile terminated call scenarios;
- (v) That all results of the tests conducted during a quarter of a year, with effect from the 1<sup>st</sup> day of October 2018 shall be submitted to the Authority within 21 days from the date of end of every quarter as per proforma attached as Annexure-I.



**(Asit Kadayan)**  
**Advisor (QoS)**

To  
All Access Service Providers

**Annexure-I**Format for submission of report

	Name of Access Provider: Name of LSA:		Quarter Ending:		
			Call Setup Time (in seconds)		
S. No.	Name of Test Location	details of Test cases/ results	Circuit Switched Fall back	Mobile Originating (MO) end	Mobile Terminating (MT) end
			LTE (4G) to GSM (2G)		
			LTE (4G) to WCDMA (3G)		